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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,386

10/02/2006

Gunther Leising

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EXAMINER

LI, MEIYA

ART UNIT

PAPER NUMBER

2811

MAIL DATE

DELIVERY MODE

12/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/586,386

Applicant(s)

LEISING, GUNTHER

Examiner

Meiya Li

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

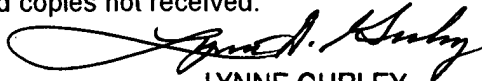
## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.



LYNNE GURLEY  
SUPERVISORY PATENT EXAMINER  
TC2800, A42811

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/17/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on July 18, 2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "through-contacts" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "through-contacts have a diameter of less than 100  $\mu\text{m}$ " (claim 8, lines 4-5).

5. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Objections***

6. Claims 1-8 are objected to because of the following informalities:

7. In claim 1, English grammatical errors. Changing "die" to "dies" in line 2; and "attach" to "attached" in line 3 are suggested.

8. In claim 1, line 4, the phrase "the side" is informal. Changing to the phrase "a side" is suggested.

9. In claim 2, line 3, the phrase "the contact areas" is informal. Changing to the phrase "contact areas" is suggested.
10. In claim 2, line 5, the phrase "the lateral side" is informal. Changing to the phrase "a lateral side" is suggested.
11. In claim 4, line 3, the phrase "the conductor paths" is informal. Changing to the phrase "conductor paths" is suggested.
12. Claims 6-8 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 recited the broad limitation "a light emitting diode light source" does not constitute a further limitation of claim 1.
13. In claim 7, line 3, the phrase "the real side" is informal. Changing to the phrase "a real side" is suggested.
14. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
16. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly define the metes and bounds of the subject matter.

18. Regarding claims 1 and 2, the phrase "if" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

19. Regarding claims 1 and 6, the phrase "preferably" renders the claim indefinite because it is unclear which area is being referenced – the half the area or the entire area.

20. The claimed limitation of "opposite to the light emitting diode die", as recited in claim 1, lines 4-5, is unclear to what does it mean.

21. The claimed limitation of "half the area", as recited in claim 1, line 7, is unclear to which area applicant refers.

22. The claimed limitation of "formed as plug contacts", as recited in claim 1, line 6, is unclear as to the structural relationship between the plug contacts and the device.

23. The claimed limitations of "the necessary exceptions", as recited in claim 1, line 7, and claim 6, line 8, are unclear to which structure is claimed.

24. Claim 2 recites the limitation "the side ..." in lines 3-4, is unclear which side is being referenced in claim 1 – the side recited in line 4 or an additional unclaimed side.

25. The claimed limitation of "the light emitting diode die ... on the light emitting diode die", as recited in claim 5, is unclear to which structure is claimed.

26. The claimed limitations of "there is arranged", as recited in claim 4, line 3, is unclear as to somewhere or something be arranged.

27. Claim 6 recites the limitation "a plug" in lines 3, is unclear which plug is being referenced in claim 1 – the plug recited in line 6 or an additional unclaimed plug.

28. Claim 6 recites the limitation "with which ... are contacted" in lines 4-5, is unclear which contact is being referenced – the board contact areas recited in line 3 or the plug contacts recited in line 4.

29. The limitation "the board" in claims 6, line 3; claim 7, line 3; and claim 8, line 2 are unclear which board is being referenced – the light emitting diode printed circuit board recited in claim 1 line 3 or the board in claim 6, line 3.

30. The limitation "the contacts" as recited in claim 6, line 5, is unclear which contacts is being referenced – the rear side contacts of light emitting diode or the rear side contacts light emitting diode printed circuit board or contacts of board or contacts of plug.

31. The claimed limitation of "and/or", as recited in claim 8, is unclear as to which structure is claimed.

### ***Claim Rejections - 35 USC § 102***

32. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

33. Claim 1, as best understood, is rejected under 35 U.S.C. 102(b) as being anticipated by Hanamoto et al. (Pub. # US 2002/0063301A1, published on May 30, 2002).

As for claim 1, Hanamoto et al. shows (Fig. 14A; [0303]) a light emitting diode 7a, wherein at least one light emitting diode die 7a is arranged on a light emitting diode printed circuit board 18 with a die attach 11 and the light emitting diode printed circuit board 18 has, on the side opposite to the light emitting diode die, rear side contacts 18a/18b which if appropriate are formed as plug contacts, wherein the rear side contacts cover over at least half the area, preferably the entire area apart from the necessary exceptions, of the light emitting diode printed circuit board.

34. Claims 1, 2, 5-7, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Suehiro et al. (Pub. # US 2002/-139990 A1, published on October 3, 2002).

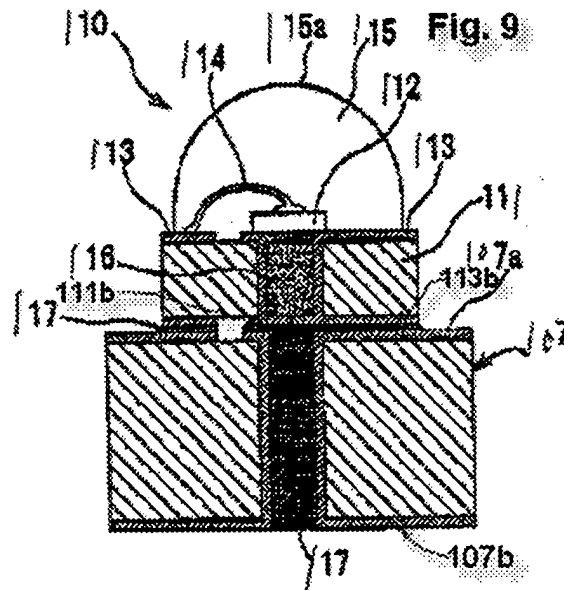
As for claim 1, Suehiro et al. shows (Fig. 2A; [0079]; [0085]) a light emitting diode 11, wherein at least one light emitting diode die 2 is arranged on a light emitting diode printed circuit board 3 with a die attach and the light emitting diode printed circuit board 3 has, on the side 3b opposite to the light emitting diode die 2, rear side contacts 4b which if appropriate are formed as plug contacts, wherein the rear side contacts 4b cover over at least half the area, preferably the entire area apart from the necessary exceptions, of the light emitting diode printed circuit board 3.

As for claim 2, the rear side contacts 4b are thermally, and if appropriate electrically, connected with the contact areas on the side of the light emitting diode



As for claim 6, a light emitting diode light source 110 having one or more light emitting diodes 112 arranged on a board 107 or on a plug, wherein the board 107 has contact areas, or the plug has contacts, with which the light emitting diodes 110 are contacted, wherein the rear side contacts of the light emitting diodes 112 are soldered with the contact surfaces or with the contacts on at least half the area of the light

As for claim 7, a cooling body 107b is arranged on the rear side of the board 107 (Fig. 9).



### ***Claim Rejections - 35 USC § 103***

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

36. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

37. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanamoto et al. (Pub. # US 2002/0063301A1, published on May 30, 2002) as applied to claim 1 above, in view of Chang et al. (Pub. # US 2004/0099874 A1, published on May 27, 2004, filed on November 19, 2003).

As for claim 3, Hanamoto et al. does not explicitly show the light emitting diode printed circuit board is a metal core board.

As for claim 4, Hanamoto et al. does not explicitly show the light emitting diode printed circuit board is a metal core board and wherein there is arranged between the conductor paths and the metal core an electrically non-linear insulator material.

In the same field of endeavor, Chang et al. teaches the light emitting diode printed circuit board is a metal core board and wherein there is arranged between the conductor paths and the metal core an electrically non-linear insulator material (Fig. 1A; [0028]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to include the metal core board and wherein there is arranged between the conductor paths and the metal core an electrically non-linear insulator material, as taught by Chang et al. in the device of Hanamoto et al., for optimum thermal dissipation from the package.

38. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suehiro et al. (Pub. # US 2002/-139990 A1, published on October 3, 2002) as applied to claim 1 above.

As for claim 8, Suehiro et al. discloses the claimed invention except for the through-contacts have a diameter of less than 100  $\mu\text{m}$ . It would have been obvious to one having ordinary skill in the art at the time the invention was made for the through-contacts have a diameter of less than 100  $\mu\text{m}$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 21 (CCPA 1980).

### ***Conclusion***

39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ref's A-C, E, and G-M are cited as being related to LED and LED light source.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meiya Li whose telephone number is (571) 270-1572. The examiner can normally be reached on Monday-Friday 7:30AM-5:00PM Eastern Standard Time.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on (571) 272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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ML  
11/30/2007

  
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AU 2811, TC 2800